IN THE CLAIMS:

Please amend the claims as follows:

1. (Currently amended) A dispersion compensator, comprising:

an input port for receiving a WDM optical signal;

a dispersion compensating element coupled to the input port for substantially compensating the WDM optical signal for dispersion that has accumulated along an external transmission path;

an output port for directing the dispersion compensated WDM optical signal to an external element; and

a dynamic power controller for maintaining a total power of the WDM signal below a prescribed level prior to receipt of the WDM optical signal by the dispersion compensating element,

wherein said prescribed level below which the total power of the WDM optical signal is to be maintained is sufficient to substantially avoid non-linear interactions in the dispersion compensating element, and

said dynamic power controller determines the total number of channels and the total power in said WDM optical signal.

2. (Cancelled)

3. (Currently amended) A dispersion compensator, comprising:

an input port for receiving a WDM optical signal;

a dispersion compensating element coupled to the input port for substantially compensating the WDM optical signal for dispersion that has accumulated along an external transmission path;

an output port for directing the dispersion compensated WDM optical signal to an external element; and

a dynamic power controller for maintaining a total power of the WDM signal below a prescribed level prior to receipt of the WDM optical signal by the dispersion compensating element,

wherein said dynamic power controller comprises:

a variable optical attenuator (VOA) located at a point intermediate to the input port and the dispersion compensating element; and

a control arrangement for adjusting attenuation of the VOA based on a measured power level of the WDM optical signal, and

wherein said dynamic power controller determines the total number of channels and the total power in said WDM optical signal.

4. (Currently amended) The dispersion compensator of claim [[2]] 1 wherein said dynamic power controller comprises:

a variable optical attenuator (VOA) located at a point intermediate to the input port and the dispersion compensating element; and

a control arrangement for adjusting attenuation of the VOA based on a measured power level of the WDM optical signal.

5. (Original) The dispersion compensator of claim 3, wherein said control arrangement comprises:

a first optical tap located at a point intermediate to the input port and the dispersion compensating element for receiving a portion of the WDM optical signal; and

a controller for adjusting the attenuation of the VOA based on said received portion of the WDM optical signal.

6. (Original) The dispersion compensator of claim 5, wherein said control arrangement further comprises:

an optical tunable filter coupled to the first optical tap for receiving a portion of the WDM optical signal therefrom; and

a first photodetector coupled to the optical tunable filter for generating a first reference signal in response to said portion of the WDM optical signal received from the optical tunable filter, said first reference signal being directed to said controller.

7. (Original) The dispersion compensator of claim 5, wherein said first optical tap is located at a point intermediate to the input port and the VOA.

8. (Original) The dispersion compensator of claim 6, wherein said first optical tap is located at a point intermediate to the input port and the VOA.

9. (Original) The dispersion compensator of claim 5, wherein said first optical tap is located at a point intermediate to the VOA and the dispersion compensating element.

10. (Previously presented) The dispersion compensator of claim 8 further comprising:

a second optical tap located at a point intermediate to the VOA and the dispersion compensating element for receiving a portion of the attenuated WDM optical signal;

a second photodetector coupled to the second optical tap for generating a second reference signal in response to said received portion of the attenuated WDM optical signal; and

a comparator having inputs receiving the second reference signal and a control signal provided by the controller and having an output for providing a drive signal to the VOA for adjusting the attenuation thereof.

11. (Original) The dispersion compensator of claim 10 further comprising:

an optical splitter having an input coupled to the first optical tap and a first output coupled to the tunable filter; and

a third photodetector coupled to a second output of the optical splitter for generating a third reference signal representative of a total power level of the WDM optical signal received at the input port, said third reference signal being provided to said controller.

12. (Currently amended) The dispersion compensator of claim 9 further comprising:

an optical splitter having an input coupled to the first optical tap and a first output coupled to [[the]] a tunable filter; and

a second photodetector coupled to a second output of the optical splitter for generating a third reference signal representative of a total power level of the WDM optical signal after traversing the VOA, said second reference signal being provided to said controller.

13. (Currently amended) A method for providing dispersion compensation to a WDM optical signal, said method comprising the steps of:

receiving the WDM optical signal;

maintaining a total power of the WDM signal below a prescribed level;

directing the WDM signal to a dispersion compensating element;

substantially compensating the WDM optical signal for dispersion that has accumulated along an external transmission path;

directing the dispersion compensated WDM optical signal to an external element,

wherein said prescribed level below which the total power of the WDM optical signal is to be maintained is sufficient to substantially avoid non-linear interactions in the dispersion compensating element, and

wherein said step of maintaining a total power of the WDM signal below a prescribed level comprises determining the total number of channels and the total power in said WDM optical signal.

14. (Cancelled)

15. (Currently amended) The method of claim [[14]] 13, wherein said prescribed level corresponds to a prescribed power level per channel.

16. (Currently amended) A method for providing dispersion compensation to a WDM optical signal, said method comprising the steps of:

receiving the WDM optical signal;

maintaining a total power of the WDM signal below a prescribed level;

directing the WDM signal to a dispersion compensating element;

substantially compensating the WDM optical signal for dispersion that has accumulated along an external transmission path;

directing the dispersion compensated WDM optical signal to an external element,

wherein the power maintaining step comprises the step of attenuating the WDM optical signal at a point intermediate to the input port and the dispersion compensating element, and

determining the total number of channels and the total power in said WDM optical signal.

17. (Currently amended) The method of claim [[14]] 16, wherein the attenuating step comprises the step of determining a level of attenuation to be provided to the WDM optical signal based on a measured power level of the WDM optical signal.

18. (Original) The method of claim 17, wherein the determining step is accomplished in accordance with an open loop configuration.

19. (Original) The method of claim 17, wherein the determining step is accomplished in accordance with a closed loop configuration.

20. (Original) The method of claim 17, wherein the determining step is accomplished in accordance with a feedback loop configuration.